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NATURAL DISASTER REDUCTION: EFFECTS OF DISASTERS ON MODERN SOCIETIES

Technical session

Addendum

Megacities: vulnerability of infrastructure to natural disasters

Summary of presentation by Mr. Stuart Mustow, President, Institute of Civil Engineers, and Representative of the World Federation of Engineering Organizations

1. Within the cycle of disaster management, the World Federation of Engineering Organizations (WFEO), and its London work centre at the Institution of Civil Engineers, consider that prevention is better than cure: that planning to minimize the effects of natural hazards is preferable to responding to the often disastrous effects of such hazards.

2. The logical conclusion of such an approach is that the process of disaster management becomes inextricably linked with strategic planning and development. A well-planned megacity is by definition one which has the capacity to withstand or at least diminish the impact of those natural hazards to which the city may be susceptible. The planning and condition of a city's built infrastructure is, we consider, a key factor.

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3. The rapid growth rate of the typical megacity is a significant factor in its development, often overwhelming the capacity of both the city's planning processes and existing infrastructure. Familiar urban characteristics of pressure on land and accommodation are exacerbated by unreliable and inadequate supplies of water, electricity and transport, and little or no public health provision. Preliminary studies conducted by the work centre show that much of the physical infrastructure of such cities would be vulnerable to major hazard, which would cause disruption of shelter, food, water and energy supply lines, movement, health care and, to a greater or lesser extent, create lasting damage within the national economy.

4. There are many examples of projects undertaken throughout the developing world, which are aimed at improving infrastructure, community facilities and the quality of life. It is our aim to ensure that such projects are also infused with awareness by national and regional authorities of the necessity of disaster mitigation, and knowledge of the principles to be applied.

5. Cost-effectiveness is a major consideration if the immense task of inner city slum-clearance and shanty town redevelopment is to be attempted. In these conditions, the appropriate technology may not be the most sophisticated or advanced; low-cost measures which build upon existing resources, skills and facilities could be the more feasible and sustainable solution. Public awareness, preparedness and education are areas in which the role of local community organizations and residents is pivotal.

6. A weak and ineffective organizational infrastructure will also exacerbate vulnerability. Legislative measures and administrative procedures for reducing risks are generally established and supported by an extensive foundation of knowledge and experience. Procedures are, however, worthless without properly resourced, planned and coordinated implementation by trained personnel.

7. Dissemination of information, education in its widest sense, communication and incentives are the means to encourage Governments, cities, communities, professionals and businesses to include disaster mitigation as part of their normal programming.

8. Finally, our studies highlight the absence of an independent source of information on mitigation to which government and cities can turn for advice. What is recommended is the establishment of an international body to coordinate mitigation measures, including the early completion of risk assessment for all megacities, as a precursor to comprehensive national assessments of the risks from natural hazards.

9. By studying these issues, WFEO and its work centre aim to produce a comprehensive practical methodology for assessing hazards, risks and the most cost-effective solutions for existing and emerging megacities, drawing together the roles of each level of government and of the relevant professional disciplines.